COMPREHENSIVE RESPONSE TO COMMENTS ON HUMAN HEALTH RISK ASSESSMENT AOC-5 FALCON REFINERY SUPERFUND SITE

U.S. Environmental Protection Agency (EPA) Comments Received on 25 April 2014

EPA General Comment No. 1 (4-25-14):

The conclusions made in this risk assessment are supported by the data presented. The risk assessment could be improved by showing a comparison to background sediment concentrations, and by using fish tissue samples to evaluate risk from fish ingestion. A comparison to ARAR and TBC values is also needed.

EA Response: Comment noted. A comparison to background sediment concentrations has been included in the HHRA. Based upon the conservative evaluation of fish tissue through the use of uptake from surface water, it does not appear that the evaluation of fish tissue is needed at AOC-5 at this time. The risk-screening table for surface water (i.e., Table 2) has been revised to also include Applicable or Relevant and Appropriate Requirement (ARAR) values. ARAR values include the Texas Water Quality Standards for human health protection (TAC Title 30, Chapter 307) and To Be Considered (TBCs) are the Texas Human Health Surface Water Risk-Based Exposure Limits (RBELs).

EPA General Comment No. 2 (4-25-14):

The evaluation of risk from fish ingestion showed a slight non-carcinogenic risk from selenium. This risk is likely overstated because of the use of max values, the assumption that 100% of fish consumed came from AOC5, and the assumption that fish were exposed to COPCs coming from AOC5 100 percent of the time. It is likely that a large fish suitable for consumption would be utilizing an area much larger than AOC5. This could be confirmed if fish tissue samples were collected, but this may not be needed if more realistic values are used in fish consumption calculations.

EA Response: It is agreed that the evaluation for AOC-5 is very conservative in the assumptions of fish exposure to chemical(s) of potential concern (COPCs) from AOC-5, and the consumption rate of fish from the AOC. The fish consumption rate was taken from the EPA 2011 Exposure Factors Handbook (EFH). The study presented in the 2011 EFH is specifically for self-caught fish consumed by recreational anglers in Lavaca Bay, Texas. Lavaca Bay, Texas is located relatively close to AOC-5. However, it is agreed that recreational anglers fishing in Lavaca Bay would visit an area much larger than AOC-5. As a result, the number of meals per year from the Lavaca Bay study in the 2011 EFH has been reduced by approximately half to represent the smaller area of AOC-5 in comparison to an entire bay area.

EPA General Comment No. 3 (4-25-14):

Please provide a better description of the watermen exposure scenario and exposure pathways that are evaluated under this receptor scenario.

EA Response: The watermen were assumed to represent commercial fishermen or other worker receptor. Based upon the size of AOC-5 and the availability of other areas for commercial fishing, the watermen scenario was removed from the HHRA. The evaluation of the adult recreational user would adequately account for all adult receptors who may contact AOC-5.

EPA Specific Comment No. 4 (4-25-14):

Data tables 1, 2 and 3: These tables show NA for all contaminants in the ARAR/ TBC columns. State water quality standards should be considered as ARARs and TX RBELsw values are considered TBC values.

EA Response: These values have been added to the ARAR/TBC column in data tables 1, 2, and 3 risk-screening tables.

EPA Specific Comment No. 5 (4-25-14):

Page 24, Fish Ingestion rate: The values listed for fish ingestion rate do not seem to match the total fish ingestion rate from the exposure factors handbook, or the default 17.5g/person/day rate established by TCEQ. The rate provided is probably acceptable due to conservative assumptions made in modeling fish tissue concentration.

EA Response: The fish ingestion rate is specifically an ingestion rate determined for a recreational angler in Lavaca Bay, Texas as presented in EPA 2011 EFH. It is expected that any recreational fishers within AOC-5 would be similar to those evaluated for Lavaca Bay, which is located very close to AOC-5. This study presented both a portion size, which was used as the intake rate, and number of meals per month for different age ranges. The portion sizes range from 8.2 ounces for an adult male to 4.7 ounces for a child. The ingestion rate used in the HHRA is different from the total fish ingestion rate in the 2011 EFH (Table 10-3) and the TCEQ default rate. The ingestion rates presented in the 2011 EFH represent fish ingestion across the general population. These ingestion rates may not be completely representative of recreational anglers that are expected to fish near AOC-5. Additionally, the Texas Commission on Environmental Quality (TCEQ) default ingestion rate of 17.5 grams/person/day equates to a serving size of only 0.62 ounces and is consistent with an assumption that ingestion is for the entire year. Based upon the similarities of the Lavaca Bay study to AOC-5, it is recommended to retain the fish ingestion rate used in the HHRA. However, the number of meals per year from AOC-5 will be reduced to account for the smaller area of AOC-5 in comparison to Lavaca Bay.

EPA Specific Comment No. 6 (4-25-14):

Section 2.1.3 and Table: The footnotes shown in table one list the source of screening toxicity values as the Maryland Dept. of the Environment. Section 2.1.3 says values are from the RSL tables. Footnote 5 in table one says ARAR values are from RSL tables. This needs to be revised with correct source of screening values and ARARs.

EA Response: Section 2.1.3 and the risk-screening table for sediment have been revised to note the EPA residential soil Regional Screening Level (RSL) was used in the HHRA.

EPA Specific Comment No. 7 (4-25-14):

Section 2.1.3: This section discusses groundwater screening values. The groundwater exposure pathway was not evaluated and screening values were not presented. This needs to be revised.

EA Response: Discussion of the ground water pathway has been removed from the text for AOC-5.